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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/510,490 | 04/25/2005 | Meinhard Schwefer | 09600-00023-US | 1533 |

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CONNOLLY BOVE LODGE & HUTZ, LLP
P O BOX 2207
WILMINGTON, DE 19899

| EXAMINER | |
|---|---|
| VANOY, TIMOTHY C | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1754 | |

| MAIL DATE | DELIVERY MODE |
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| 08/17/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/510,490 | SCHWEFER ET AL. | |
| | Examiner | Art Unit | |
| | Timothy C. Vanoy | 1754 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-7 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-7 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *June 28, 2006; Oct. 7, 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Oath/Declaration*

The oath or declaration filed on Apr. 25, 2005 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

> The oath or declaration is defective because non-initialed and non-dated alterations have been made to the oath or declaration. The alterations to the mailing addresses of the inventors has been made by providing a full signature of the last name of the inventors (but not initials and date): See 37 CFR 1.52(c).

### *Specification*

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally **limited to a single paragraph** on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

*The abstract in this application is not limited to a single paragraph and is therefore objected to.*

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

a) Claim 1 appears to set forth a three-step process for removing $NO_x$ and $N_2O$ out of a gas, comprising:

a) a first step of removing $NO_x$ out of the gas;

b) a second step of removing $N_2O$ out of the gas, and

c) a third step of passing the gas through a reactor containing an iron-laden zeolite at a temperature of up to 450 °C.

However, pg. 4 lns. 21-25 in the applicants' specification seems to suggest that the applicants' process is a two-step process, wherein the iron-laden zeolite is used in either or both of the $NO_x$ removal and $N_2O$ removal steps. So, is the applicants' process a three-step process (as set forth in applicants' claim 1) or is the applicants' process a two-step process (as suggested by the applicants' specification on pg. 4 lns. 21-25)?

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) In claims 1 and 6, the phrase "in particular" renders the claims vague and indefinite because preferences are properly set forth in the specification, rather than the claims: please see section 2173.05(d) in the MPEP.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/51182 A1 to Schwefer et al. in view of the literature reference titled "Selective catalytic reaction of $N_2O$ with methane in the presence of excess oxygen over Fe-BEA zeolite" by S. Kameoka et al.

The English abstract of this Schwefer reference describes a method for removing both $NO_x$ and $N_2O$ from the exhaust gas emitted from a nitric acid production process, comprising:

passing the exhaust gas through a first stage where the $NO_x$ is reduced (evidently via reaction between the $NO_x$ and ammonia: please note pg. 10 lns. 3-10, and also evidently at a temperature below 400 °C: please see pg. 6 lns. 23-29), and

passing the exhaust gas through a second stage comprising an iron-loaded zeolite where the $N_2O$ is reduced (evidently via reaction between the $N_2O$ and NO: please note pg. 7 ln. 7).

The difference between the applicants' claims and this Schwefer reference is that the applicants' claims call for the use of either a hydrocarbon, carbon monoxide or hydrogen as the reducing agent for the $N_2O$ (whereas the Schwefer reference appears to use NO as the reducing agent for the $N_2O$: please note pg. 7 ln. 7).

The Kameoka et al. literature reference describes the reaction of $N_2O$ with methane over an iron-exchanged BEA zeolite catalyst (please see the abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to have modified* the process described in the Schwefer reference *by substituting* the methane reducing agent for $N_2O$ described in the abstract of the Kameoka et al. literature reference in lieu of the NO reducing agent for $N_2O$ described on pg. 7 ln. 7 in the Schwefer reference, in the manner set forth in the applicants' claims, *because* the courts have already determined that such substitution of one known functional equivalent in lieu of another known functional equivalent is *prima facie* obvious: please note the discussion of the *In re Fout* 675 F.2d 297, 213 USPQ 532 (CCPA 1982) court decision set forth in section 2144.06 in the MPEP.

The following references are made of record:

U. S. Pat. 6,056,928 disclosing a process for removing $NO_x$ out of a gas comprising a first stage for absorbing nitrogen oxides other than $N_2O$, and then a stage of reducing the amount of $N_2O$;

U. S. Pat. 5,482,692 disclosing the use of an iron-loaded zeolite catalyst for removing nitrogen oxides out of a gas, and

EP 0 756 891 A1 disclosing the use of an iron-loaded zeolite catalyst for removing nitrogen oxides out of a gas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Timothy C Vanoy
Primary Examiner
Art Unit 1754

tcv